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ABSTRACT

While 15 years ago only a few schools had microcomputers, today a majority of public schools have some computers, although an adequate number of computers for students to use is still in the future. Unfortunately, statistics show that, in many states, a higher percentage of male students are enrolled in computer classes than female; boys seem to be forging ahead in every computer-related field except word processing, a traditionally female skill. However, the problem is not lack of female interest in computing; there are a multitude of forces operating in our culture that discourage girls from using the computer at the same time that other sociological forces reinforce computer use by boys. Girls frequently see computer courses as hard and/or somehow related to mathematics and the computer as a complicated machine. Elementary teachers can overcome this fear by allowing their female students to inspect the inside of a computer to see that there is really very little there. Another method of ensuring more female participation in comptuing activities is to provide more role models; students should see their teacher (female) making small repairs on the computer, redoing programs that have flaws in them, writing her own programs, networking with other computer users, using modems, etc. Administrators and teachers are advised to examine their schools, its courses, and its software purchases to determine whether the computer services are appropriate and equitable for both boys and girls. (JB)

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# Closing the Gender Gap: Girls and Computers

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## Closing the Gender Gap: Girls and Computers

Last year in Tampa, Florida, there was a computer programming contest held at the University of South Florida. Fifty high schools sent a total of 200 contestants, their best computer programmers. Of these, 195 were boys and 5 were girls. Two of the 5 girls were secretaries to boys' teams. What is going on here?

The use of computers in education is a practice still in its infancy but it is already showing traits of the family into which it was born. About fifteen years ago only a few schools had microcomputers. Today a majority of public schools have some computers, although an adequate number of computers for students to use is still in the future. As with a new baby, schools are still determining exactly how to handle this powerful, demanding, exciting, and still to some people, somewhat useless creature.

One thing is clearly happening, however. Already there is a growing gap between the sexes in the use and competency on the computers. This difference is showing up now particularily in high schools.

These students in high school today may well be the last of their kind. They are not likely to have had six or more years of computer use before starting high school. This is important for elementary teachers to know since it means that elementary teachers still have the opportunity to change

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things.

The statistics concerning the courses that are being offered to older students in the high schools are very revealing. According to statistics compiled by PEER, the Project on Equal Education Rights of NOW, 1984, in California for the year 1981-82, 62.5 percent of the students enrolled in computer courses were male with only 37.5 female. The situation was similar in Maryland in 1980-81 (64.1 male; 35.9 female) and Michigan in 1981-82 (64.0 male; 36.0 female). To make the situation more specific, here is an example from a high school in Tampa, Florida. In a course entitled "Introduction to Computers," there were 95 boys enrolled and 90 girls. The number there was very close and not cause for alarm. But look what happens after that. "Computer Applications" 80 boys, 56 girls; "BASIC (Programming)" 126 boys, 98 girls; "Computer Programming 1,2,3" 71 boys, 6 girls; "Computer Science" 9 boys, 3 girls; and finally, and to be noted well, "Word Processing" 7 boys, 52 girls.

Thus boys are forging ahead in computers in every aspect except word processing. This looks remarkably similar to the patterns that have been developed through the centuries: boys develop the skills that prepare them for managerial, technical, or scientific positions; girls learn to be very modern and skilled secretaries. (This is not a put-down of word processing from one who is writing this very article on a word processor; word processing is a most useful skill and it is the single largest use of computers. The concern here is that this is the only skill many girls learn).

What is happening to computers and female students? Are girls being forbidden to use computers? Are girls simply not interested in them?

It cannot be said that girls are not permitted to use computers or that the computer courses are not open to them. This is hardly the case. If it were, the solution to the problem would be as simple as making new laws and enforcing them. What we have here is a sociological situation, not a legal one. There are a multitude of forces operating in our culture that discourage girls from using the computer at the same time that other sociological forces reinforce boys' use of it.

We could begin to examine the situation by asking another question: Who gets the computers? Since computers are still rather expensive for home and common school use, it is clear that wealthier people and wealthier school districts are likely to have more computers. The people most likely not to have computers are children of poor women. It is well known today that poverty has become feminized. The poorest homes are those headed by a woman alone who is able to do only unskilled labor. She will not be able to afford anything as expensive and, as she may see it, unnecessary, as a computer. Now, of course, both her sons and her daughters are thus deprived of computers. It has been shown that a mother's modeling use of the computer has advantageous effects on both her sons and daughters. Poor mothers are less likely to be able to provide such modeling.

But even in middle class families, parents who do choose

to buy computers are more likely to buy a computer for a son than for a daughter. Reseach has shown further that boys have more free time than girs do. In spite of all the sociological changes that have taken place in the past years including ideas of what constitutes women's work and what constitutes men's work, women still do most of the housework. They are also more likely to expect their daughters to help them than their sons. (There are many exceptions to this of course, including the one in which mothers do not ask either sons or daughters to help).

In most elementary schools, both boys and girls are given equal opportunities to work on the few computers that are available to them. Most elementary schools do not have a sufficient number of computers for either boys or girls to become more than introduced to the computer. The situation changes when computer work in general turns into specific courses in computers. This is what happens in junior and senior high schools and perhaps even in some intermediate grades. Here boys are given more encouragment to take these courses. This encouragement is not necessarily from his teachers or his guidance counselors, but more than likely from his peers. There comes into play a sort of computer subculture, computer clubs, computer codes, and all the aspects of a quasi-gang. This subculture is a spin-off from school, engaged in during perhaps after-school or extracurricular activities. With boys more likely to have their own computers and more free time to use them, they quickly see the computer as one of their (male) objects, the way the male world has

always claimed automobiles and weapons and motor cycles. Computer hacks who are boys are likely to have status from their peers the way the star football players have.

Girls, on the other hand, frequently see computer courses as hard and somehow related to mathematics ("Well, I've never been good at math"), and the computer as a complicated machine. There is a certain type of phobia concerning machines that is found among some women. But it is to be noted that this concerns only selected machines. After all, women every day use some rather complex machines such as sewing machines and the myriad of kitchen equipment. These machines are precision machines and take training to learn how to use them. Still, many women somehow feel that machines will either break for them, do strange things, or just won't work at all. Just witness the case of a third-grade teacher who will call for a fifth-grade boy to come and run her movie projector.

The solution is simple to verbalize, but difficult to put into practice. Women must get past this attitude toward machines. They can handle machines very well, as they often do. It has been noted that for the most part women handle machines in a different manner than men do. Woman want a machine to work, but they don't particularly care how it works. Nor do they necessarily need to. However, in order to break the stereotype of women's machine-phobia, it would be most useful if women could get involved in the inner workings of the computer. Maybe the first lesson the elementary teacher presents on computers could be one in which she opens up the computer and shows everything inside. (Students are usually

surprised how little there is inside).

This brings us to the next point. Girls need role models. One of the reasons they are not much interested in computers is simply that they do not see it as a women's thing to do, and we have already seen that when women work with computers, their modeling has a strong influence on their children. In schools girls need to be encouraged to get involved in computers. Some have suggested that there be all-girl computer clubs. I am not sure that I agree with this, but there could be some advantages of having such a club compete with a boys' club (and win at least half of the time). But the elementary teacher who is more likely to be female than not must be the one to give the example. Students should come in their classroom in the morning to see their teacher working on something on the computer -- and not just word processing either. They should see their teacher making small repairs on the computer, redo programs that have flaws in them, write some programs herself, get involved in networking with other computer users, be familiar with modems, and the whole array of peripheries. What we really need is more women hacks.

It is not being suggested that all girls should be trained to be computer operators or technicians or computer scientists. But they should be encouraged to get as much computer work as they can. Perhaps there should be some required computer courses that all students must have. Certainly they should not be allowed to miss opportunities that will set them behind in their life's work, whatever they choose to make it.

The computer itself is neutral. It doesn't really care whether the fingers who operate are male or female. But software is not neutral. In fact, an examination of software will show that frequently the ideas on the software are taken from the world of the video-games, "shoot-em-up" types of programs. Check almost any catalog of computer programs and you will find examples such as these: a program that gives the students an opportunity to practice the division of numbers as tanks move toward cannons, or a math program that uses race cars for speeding up responses. This is not to suggest that computer programs be insipid and uninspired. Neither boys nor girls want that kind of program. It is possible, however, to find programs that avoid machoisms to prove that you know your math.

It seems urgent then that administrators and teachers take a look at their schools to determine if girls are losing out. They might examine the courses being offered, the number of male and female students taking them, the teachers who are involved in teaching and working on extra-curricular programs, the persons who are selected for training. They might examine the software being provided, the reasons behind the decisions to choose certain kinds of software. But the most important thing that a female teacher can do is to herself become expert at the computer. We want this computer infant to grow up well-rounded.

The End

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